

CLAIMS

1. A non-contact holder comprising:
 - a body having an ejection recess having an ejection opening from
 - 5 which a fluid is ejected and a side surface gradually diverging toward the ejection opening;
 - discharge ports provided at positions adjacent to the side surface of the ejection recess of the body to discharge the fluid along the side surface in the axial direction;
 - 10 a fluid supply channel provided inside the body and connected to the discharge ports to supply the fluid to the discharge ports; and
 - 15 a flat end surface formed integrally with an outer edge of the body around the ejection opening so as to oppose to a surface of an object to be held opposing to the ejection opening to guide the flow of the fluid to an outside of the opposing surface of the object to be held.
2. The non-contact holder according to claim 1, wherein radial flow guides are formed on the side surface of the ejection recess to guide the flow of the fluid discharged from the discharge ports radially outward from a
- 20 center of the inner bottom surface of the ejection recess.
3. The non-contact holder according to claim 1 or 2, wherein the fluid supply channel includes axial flow guides for guiding the flow of the fluid to be discharged from the discharge ports to the side surface of the ejection recess in the axial direction of the side surface of the ejection recess.

4. The non-contact holder according to any one of claims 1 to 3, wherein the fluid supply channel has a fluid reservoir for storing a required amount of the fluid on a way thereof.
5. 5. The non-contact holder according to any one of claims 1 to 4, wherein a plurality of fluid supply channels are disposed to be connected respectively to fluid supply ports provided in a peripheral surface of the body in the radial direction.
- 10 6. The non-contact holder according to any one of claims 1 to 5, wherein the discharge ports are provided at positions opposing to each other around the center of the inner bottom surface of the ejection recess, and the radial flow guides extend from the discharge ports to the ejection opening.
- 15 7. The non-contact holder according to any one of claims 2 to 6, wherein the radial flow guides and the axial flow guides are grooves or protrusions.
8. The non-contact holder according to claim 6, wherein the radial flow guides are divergent grooves having a width gradually increasing from the discharge ports to the ejection opening and a depth gradually decreasing from the discharge ports to the ejection opening, the divergent grooves being substantially flush with the side surface at the ejection opening or in the vicinity thereof.
- 20 25 9. The non-contact holder according to any one of claims 1 to 8, wherein the body comprises quartz glass.

10. The non-contact holder according to any one of claims 1 to 9, wherein the object is a glass plate, a sheet, a resin semiconductor wafer, or a display panel.

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11. The non-contact holder according to any one of claims 1 to 10, further comprising: a fluid storage tank provided on a way of an external fluid supply channel for connecting the fluid supply channel of the body to a fluid supply source to store a required amount of fluid; and a fluid temperature controller for controlling a temperature of the fluid stored in the fluid storage tank.

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15 12. The non-contact holder according to any one of claims 1 to 11, further comprising: a grip portion provided on the body so as to be held thereby; and a stopper provided on the body to restrict a displacement of the workpiece to the outside of the outer peripheral surface thereof.

13. The non-contact holder according to claim 12, wherein the grip portion is formed so as to be attached to and detached from a movable unit.

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14. A non-contact holding and transferring device comprising:
a panel having a plurality of the non-contact holders according to any one of claims 1 to 11;
a movable member which supports the panel reversibly movably in a horizontal direction thereof; and
a transferring unit for transferring the movable member.